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SONNENSCHEIN NATH & ROSENTHAL

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Stuart E. Hunt
(202) 408-6448

48453

August 24, 1998

RSPA-98-4418-1

98 SEP -4 AM 10:37
DOCUMENTARY SERVICES DIV.
RECEIVED

VIA COURIER

Associate Administrator for Hazardous Materials Safety
Research and Special Programs Administration
U.S. Department of Transportation
400 Seventh Street, S.W.
Washington, D.C. 20590-0001

Attn: Approvals, DHM-3 1

Re: Exemption Request for Daicel Safety Systems, Inc.
Model DHD 5000 Automobile Airbae Inflator

Dear Ms. Hedgepeth:

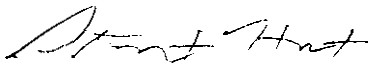
Our client, Daicel Safety Systems, Inc. ("Daicel"), manufactures automobile airbag inflators. It manufactures the DHD 5000 inflator under license from OEA, Inc. Enclosed is the Daicel exemption request for the DHD 5000 inflator. The request contains confidential information. Pursuant to 49 C.F.R. § 107.5, redacted copies of those confidential documents are enclosed.

Daicel has retained Authorized Testing, Inc. ("ATI"), an approved independent inspection agency, to perform the design certification testing of the DHD 5000. Mr. Steve Hutchinson of ATI has had discussions with your staff concerning this project, and based on those discussions, it is his understanding that Daicel is not required to submit a separate request for approval for non-domestic tests under 49 C.F.R. § 173.300b to have ATI do the design certification work for the project. If, however, RSPA will require such a request for an approval, please let me know right away, so we can submit the request to the Approvals Branch.

As I mentioned in our telephone call last Friday, please call me once your staff has reviewed the Daicel exemption request to let me know whether you believe that scheduling a meeting with Mr. Yusaburo Nakazato of Daicel will assist in the prompt consideration of the request. Daicel is very interested in doing all that it can to ensure the speedy approval of this request, because it is scheduled to ship the DHD 5000 inflator to its customers in the U.S. in January 1999.

Thank you for your assistance on this.

Very truly yours,



Stuart E. Hunt

SEH:sky:8100196

Enclosures

cc: Mr. Yusaburo Nakazato (with enclosures)
Mr. Steve Hutchinson (with enclosures)

THE APPLICATION OF AIRBAG INFLATOR MODEL/NO. DHD 5000 FOR DOT EXEMPTION APPROVAL

DAICEL SAFETY SYSTEMS, INC.

DAICEL SAFETY SYSTEMS, INC.

UMABA, IBOGAWA-CHO, IBO-GUN, HYOGO, 671-16[illegible]

PHONE: HEAD OFFICE 0791-72-5411 HARIMA PLANT 0791-72-5422
FAX : HEAD OFFICE 0791-72-5466 HARIMA PLANT 0791-72-4917

August 21, 1998 Daicel Document No.:DOT-98-8-21-3

Associate Administrator for
Hazardous Materials Safety
Research and Special Program Administration
U.S.Department of Transportation
400 Seventh Street,S.W.
Washington,D.C. 20590-0001
U.S.A.

Attention: DHM-31, Ms. J. Suzanne Hedgepeth
Director, Exemptions

Subject: Request for Exemption from Certain DOT Requirements

Dear Ms. Hedgepeth:

We are pleased to request you to provide a letter of Concurrence of Exemption on the basis of equivalent safety, on an on-going basis,from certain 49 CFR regulations which apply to our Model DHD 5000 Specification 39 automobile airbag inflators (refer to the attached copy of a similar exemption granted to OEA). Pursuant to 49 C.F.R. § 107.105(a)(l), a duplicate copy of this exemption request and all attachments is enclosed.

We, Daicel, manufacture hybrid inflator Model DHD 5000 under license from OEA,Inc. which is equivalent to slightly modified (i.e.:boss change) OEA Model 5800100 whose approval for exemption was given originally on October 27,1995 and renewed on July 15.1997.

Daicel proposes that equivalent safety be demonstrated by the design certification of the inflators by Authorized Testing Inc., an independent inspection agency approved under 173.300a.The design certification would involve complete testing of our Specification 39 inflators in accordance with 178.65.

Exemption is sought for the following 178.65,Specification 39,requirements:

1.178.65(f)(1): Daicel requests a hold time limited to that which is adequate to insure compliance with the requirements contained in 178.65(f)(1) instead of the required 30 seconds. Each inflator will be verified to have no leakage tested by

DAICEL SAFETY SYSTEMS, INC.

UMABA, IBOGAWA-CHO, IBO-GUN, HYOGO, 671-1681

PHONE: HEAD OFFICE 0791-72-5411 HARIMA PLANT 0791-72-5422
FAX : HEAD OFFICE 0791-72-5466 HARIMA PLANT 0791-72-4917

the Helium Leak Detector and no deformation of the final product checked by the final visual inspection.

2.178.35(b) and 173.300b: The design certification testing will be done in Japan by Authorized Testing Inc., as independent inspection agency approved under 173.300a.

Daicel therefore requests an exemption from the provisions in § 178.35(b) and 173.3001, that testing be done in the United States.

Exemption is also sought from the following 49 CFR requirements:

1.173.301(h): Since Daicel requests exemption from the above Specification 39 requirements,we also request exemption from the requirement that our compressed gas containers be built and marked in accordance with the DOT specifications referred to in this section. Each inflator will be marked DOT Exemption Number in accordance with the Attachment 5 • 8.

2.173.306(d)(3)(i): Because exemptions have been applied for our cylinders will not be in compliance with all 178.65 requirements.

All testing required by 178.65,with the exception of a limited hold time instead of 30 seconds for proof testing,will be performed,documented and met as part of the certification by the approved,independent agency.

All requirements of 178.65,with the exception of those specifically addressed herein,will be met on an on-going basis.

Daicel requests priority processing of this request because of the effect on production scheduling and costs of having on-going,independent inspections and a 30-second proof test which is not necessary to verify compliance. Daicel is rapidly approaching the production phase of this project. These inflators are used as part of an automotive air-bag safety sysytem.

Our inflator has been classified by the Explosive Bureau and requests are currently in-process at the Department of Transportation for approval.

DAICEL SAFETY SYSTEMS, INC.

UMABA, IBOGAWA-CHO, IBO-GUN, HYOGO, 671-1681

PHONE: HEAD OFFICE 0791-72-5411 HARIMA PLANT 0791-72-5422
FAX : HEAD OFFICE 0791-72-5466 HARIMA PLANT 0791-72-4917

If you have any questions,please contact our designated agent, Mr.Stuart E. Hunt of Sonnenschein Nath & Rosenthal, at 202-408-6448(phone) or 202-408-6399(facsimile). His address is:

1301 K Street, N.W.
Suite 600 East Tower
Washington, D.C. 20005

Thank you for your consideration.

Sincerely yours

S. Hayashi

Sigeru Hayashi
President

Attachments:

1.BOE Recommendation for DHD 5000
2.Hybrid Inflator Drawing DHD 5000
3.Original DOT Exemption Approval of OEA Type 5800100
4.Renewed DOT Exemption Approval of OEA Type 5800 100
5.Drawing of DHD 5000 and Parts, The Inflator Explosive & Compressed Gas Components, Parts Manufacturer List, Inspection Certificate, Caluculation of Cylinder Wall Stress and Thickness, Manufacturing and Test Equipment, Process Fglow, and Machine Layout
6.Draft Exemption for Daicel DHD5000

EXPLOSIVES BUREAU
(FORMERLY BUREAU OF EXPLOSIVES LABJ OF AMERICAN RAILROADS)

407 HARTSHORN DRIVE
SHORT HILLS, NJ 07078
Tel. (973) 467.3237 . Fax (973) 467-4648

16-172
August 3, 1998
WSC/tc

Mr. Yusaburo Nakazato
Deputy General Manager
Daicel Chemical Industries, Ltd.
Tokyo Head Office
Kasumigaseki Building
2-5 Kasumigaseki 3-chome
Chiyoda ku, Tokyo, 100, Japan

Dear Mr. Nakazato:

The device described in your letter of July 29, 1998 and attached drawing # DHD5000 (P/N DHD5000-1, P/N DHD5000-2, P/N DHD5000-3)* is properly described as Compressed gas, n.o.s. (UN number: 1956) in accordance with Sections 172.101 and classified as Class: 2.2, Non-flammable Gas in accordance with Sections 172.101, 173.304 of the DOT Hazardous Materials Regulations.

Section 173.56 requires that except for shipment of sample quantities, the shipper has to submit the recommendation letter to the Department of Transportation to apply for approval before any new explosive is offered for shipment,

If we may be of further service, please advise.

Very truly yours,

W. S. Chang

* Proposed Packaging and test results are summarized on page 2.

Ref.: # DHD5000 (P/N DHD5000-1, P/N DHD5000-2, P/N DHD5000-3)
Daicel Chemical Industries, Ltd.
Chiyoda ku, Tokyo, Japan

Proposed Packaging:

Five units are packed in one row horizontally in a 4G corrugated fiberboard box 55.4 cm x 31.9 cm x 18.4 cm with fiberboard spacer & filler.

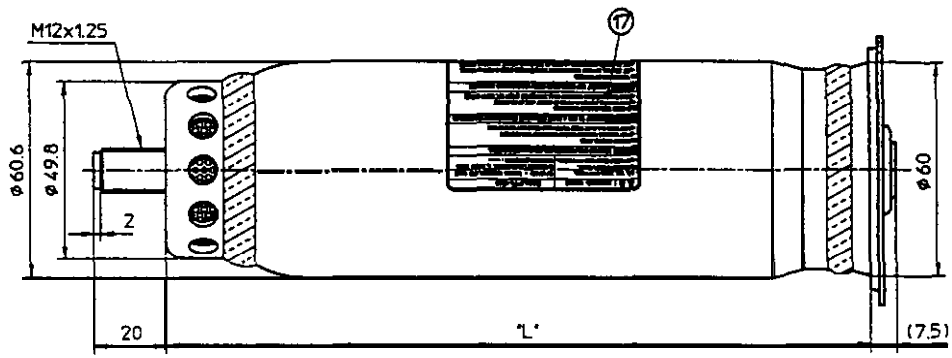
Conducted Tests

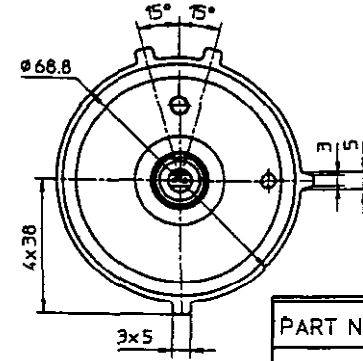
P/N DHD5000-3 is used to conducted these tests.

UN 6(a) Test:
A live pack of 5 units is used to conducted this test. One unit functioned and the other four units remained intact. The corrugated fiberboard box is ruptured.

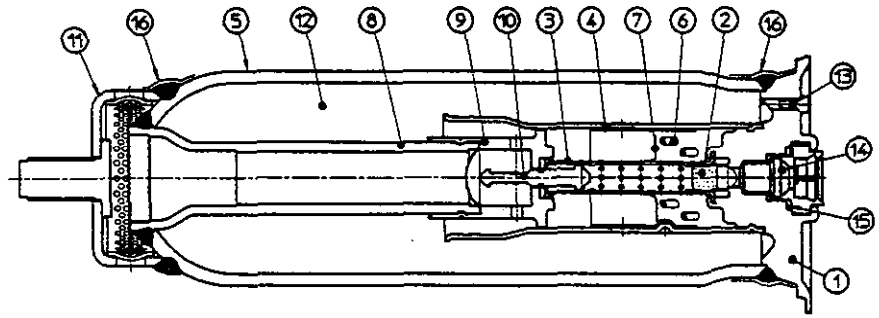
UN 6(c) Test:
Five live packs for a total of 25 units are used to conduct this test. All twenty-five units functioned discontinuously and scattered within 2 feet. The total burning time was 8 minutes.

CONFIDENTIAL





PART No.	PROPELLANT WEIGHT	OUTER DIAMETER	LENGTH "L"	GAS WEIGHT
DHD5000-1	5~ 8g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g
DHD5000-2	8.1~10g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g
DHD5000-3	10.1~12g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g



No.	PART No.	PART NAME	QTY	MATERIAL	NOTE
⑰	DHD7000100	CAUTION LABEL	1	POLYESTER	
⑯	DHD7000200	RUST INHIBITOR	–	——	
⑮	DHD7010000	O-RING	1	RUBBER	
⑭	DHD6160000	INITIATOR ASSY	1	ZPP	
⑬	DHD7020101	SEAL PIN	1	SWCH10K PER JIS	(ASTM A555 equiv.)
⑫	DHD7020000	GAS	–	Ar/O2/He	
⑪	DHD6140000	DIFFUSER ASSY	(1)	——	
⑩	DHD6130000	CHECK VALVE SUBASSY	(1)	——	
⑨	DHD7110000	ORIFICE SLEEVE	1	S15C PER JIS	(ASTM A108 equiv.)
⑧	DHD6120000	OUTLET CLOSURE SUBASSY	(1)	——	
⑦	DHD7040200	RETAINER	1	S70C-CSP PER JIS	(ASTM A684 equiv.)
⑥	DHD7040100	PROPELLANT	–	RDX/CAB/AR	
⑤	DHD7040000	BOTTLE	1	STKM18C PER JIS	(ASTM A519 equiv.)
④	DHD6090000	COMBUSTION CHAMBER SUBASSY	(1)	——	
③	DHD7060000	TRANSFER TUBE	1	SPCE PER JIS	(ASTM A620 equiv.)
②	DHD6080000	BOOSTER ASSY	(1)	——	
①	DHD6070000	INLET CLOSURE SUBASSY	(1)	——	

REV.	CHANGE NO.	DESIGN	REVISION RECORD	CHECKED	APPROVED
▽			① TABLE OF PROPELLANT WEIGHT & LENGTH ADDED. ② CAUTION LABEL ADDED.	Y.Gotoh	Y.Iwai
▽		M.Yabuta	① PART NUMBER REVISED.	Y.Gotoh	Y.Iwai
▽		M.Yabuta	① BAR CODE LABEL, HARNESS ASSY) DELETE.	Y.Gotoh	Y.Iwai

MATERIAL —	APPROVED Y.Iwai Dec/4/97	SCALE /	CUSTOMER
SHARP EDGES —	CHECKED Y.Gotoh Dec/4/97		NAME HYBRID INFLATOR
SURFACE ROUGHNESS —	DESIGN M.Tokuda Dec/4/97	A3	DRAWING No. DHD5000 REV. 3
SURFACE TREATMENT —	M.Yabuta Dec/4/97		DAICEL SAFETY SYSTEMS, INC. SHT —
HEAT TREATMENT —	WEIGHT		

U.S. Department of Transportation
Research and Special Programs Administration

400 Seventh Street, S.W.
Washington, D.C. 20590

DOT-E 11506

OCT 27 1995

EXPIRATION DATE: August 31, 1997

(FOR RENEWAL, *SEE* 49 CFR SECTION *167.105.)*

GRANTEE: OEA Automotive Safety Products, Inc., Denver, Colorado.

a. PURPOSE AND LIMITATION: This exemption authorizes the manufacture, mark and bald of non-DOT specification cylindars (pressure vessels) for use as components of automobile vehicle safty ydxw. These pressure vessels may be charged with non-toxic, non-liquefied gases, or mixtures thereof and are authorized for transportation in commerce subject to requirements and limitations specified herein. This exemption provides no relief from any regulations other than as specifically stated,

b. FIVE YEAR TRANSPORTATION AUTHORIZATION: This exemption authorizes transportation of the pressure vessels identified herein for up to five years from the date *of* manufacture. This exemption provides no certification of safety for end use environments and life cycles.

C. EXEMPTION SCOPE LIMITATIONS: This exemption only applies *to* a package when it is *an* article *of* commerce in transportation. The safety analyses performed in development of this exemption only considered the hazard6 md risks associated with transportation in commerce. Thr safety analyses did not consider the hazards and risks associated with consumer use, incorporation as a component of a vehicle or other device, or other uses not associated with transportation in commerce.

REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

REGULATIONS FROM WHICH EXEMPTED: 49 CFR 173.301(h), and *173.302* and 173.306(d)(3) insofar as non-DOT specification cylindars are not authorized.

BASIS. This exemption is based on OEA. Inc.'s application dated June 22, 1995, and additional information dated August *8, 1995,* submitted in accordance *with 49* CFR 107.103 and th4 public proceeding thereon.

6. HAZARDOUS MATERIALS (49 CFR 172.101):

a.

Hazardous materials description/proper shipping name	Hazard Class/Division	Identification number	Packing Group
Non-toxic, non-liquefied gases and mixtures thereof/ Proper shipping name as specified in 49 CFR 172.101.	2.1, or 2.2 as appropriate.	As appropriate	N/A

b. A vehicle safety system or component which contains a quantity of pyrotechnic materials must be classed and approved as provided for in Section 173.56 of the Hazardous Materials Regulations (XXX). If the pyrotechnic material augments the volume of the gas in the pressure vessel, or in any way enhances the performance of the compressed gas, the device must be tested in the same configuration au when shipped.

7. PACKAGING(S) and SAFETY CONTROL MEASURES: Packaging prescribed is 4 non-DOT specification pressure vessel meeting the following requirements:

a. PACKAGING:

(1) The maximum service pressure at 70° F may not exceed 4500 PSIG. The minimum test pressure is the pressure of the contents ht 200° F. The rated service pressure may not exceed 80 percent of the test pressure and the water volume of each pressure vessel may not exceed one liter.

(2) Material of construction must conform to all requirements of §178.65-5 except that aluminum is limited to 6061 alloy of T6 temper.

(3) Manufacturing requirements must conform to all requirements of §178.65-6.

(4) The minimum wall thickness must be such that the wall stress meets the requirements of §178.65-7.

(5) Openings and attachments must conform to all requirements of §178.65-9.

(6) Each pressure vessel must be equipped with a pressure relief device designed to meet all the requirements for a rupture disk prescribed in the Compressed Gas Association (CGA) Pamphlet S-1.1. The pressure relief device shall be capable of preventing rupture of the pressure vessel when subjected to fire test conducted in accordance with CGA Pamphlet C-14.

(7) Pressure vessels, components, and vehicle safety systems must be transported in strong outside packaging in accordance with 49 CFR 173.301(k).

b. TESTING:

(1) Each pressure vessel must be tested en required in §178.65-11 except that the bold time at test pressure specified in §178.65-11(a) may be limited to that which is adequate to insure compliance with the requirements contained in §178.65-11 paragraphs (a)(1) and (a) (2).

(2) The flattening tart specified in §178.65-12 is required except that the wedge radius prescribed in paragraph a(3) may not exceed 1.5 inches for aluminum pressure vessels. having a wall thickness exceeding 0.250 inches.

(3) A representative vehicle safety system, packaged as it would be for shipment, must be ad ivated and no materials other than non-toxic, non-flammable vapors or gases may be expelled from the package.

c. MARKING:

Each pressure vessel must be durably marked as follows:

DOT E-11506/4500[1]
lot No. xxxxx[2]
Manufacturer's Name
This Pressure Vessel May Not Be Refilled

[1] Where 4500 represents the design service pressure.
[2] Where xxxxx is the lot number as appropriate.

Note: Each line of *these* markings *may* be placed without regard to location or order on the pressure vessel.

SPECIAL PROVISIONS.

a. *This* exemption is limited to pressure vessels used as components of a vehicle safety system. The pressure vessels art! excepted from the requirements of the HMR, Part 178 when the design has been certified by an Independent Inspection Agency, approved under §173.300a as having met all the requirements of this

b. The Independent Inspection Agency's design certification must include test results and documents related to cplaaiva classification and approval. A copy of the certification must be maintained at each facility whore the vehicle safety system is manufactured and by the Independent Inspection Agency for a period of 15 years from the date of completion of the design certification.

OCT 27 1995

c. Persons who receive the packages covered by this exemption may reoffer them for transportation provided no modification or change c*ara* made to the packages, all terms of this exemption are complied with and a current copy of this exemption is maintained at each facility from which such raoffering occurs.

d. OEA, Inc. must comply with all provisions of this exemption, and all other applicable requirements contained in the HMR, Parts 171-177. No modifications may be made to the pressure vessel, pyrotechnic components or production vehicle safety system which would affect the performance of the vehicle safety system or its compliance with the requirements of this exemption until such modifications have been reviewed, tested and certified by an Independent Inspector as meeting the requirements of this exemption.

e. Except when transported *on* passenger carrying aircraft, devices utilizing the non-DOT specification pressure vessel authorized herein art exempt from the requirements of 49 CFR Parts 100-199 when installed in a motor vehicle or in completed *vehicle* components such as steering columns or door panels.

9. MODES OF TRANSPORTATION AUTHORIZED. Motor vehicle, rail freight, cargo vessel, cargo aircraft only.

This exemption is to serve a8 an authorization of The Competent Authority for the Whited States (CA-9510011) in accordance with the General Packing Instructions Chapter 2 Paragraph 2.5 of the International Civil Aviation Organization Technical Instructions (ICAO TI) and additionally meets the requirements of State variation *US* 6. Pressure vessels or vehicle safety systems complying with this exemption bra authorized to be shipped pursuant to Packaging Instruction 200 of ICAO TI.

10. MODAL REQUIREMENTS: A copy of this exemption 'must be carried aboard each cargo vessel and aircraft used to transport the packages covered by this exemption. In accordance with the provisions *of* 49 CFR Part 107, Appendix *B* to Subpart B, paragraph 3, tha shipper shall furnish a copy of this exemption to ths air carriar before or at tha time the shipment is tendered.

11. COMPLIANCE. Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties proscribed by the Federal hazardous materials transportation law, 49 U.S.C. Section 5101 et seq:

- o All terms and conditions prescribed in this exemption ahd the Hazardous Materials Regulations, Partr 171-180.
- *0* Registration required by 49 CFR 107,601 et seq., whan Applicable.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect unless a regulation has been amended making the [illegible] no longer necessary.

12. REPORTING REQUIREMENTS. The carrier is required to report [illegible] incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (49 CFR 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder of this exemption must inform the AAHMS, in writing, of any incidents involving the package and shipments made under the terms of this exemption.

Issued at Washington, D. C. :

OCT 27 1995

Alan I. Roberts (DATE)
Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590.
Attention: DHM-31.

The original or this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

Dist: FHWA, FRA, USCG, and FAA

Attachment 4 - 1
JUI 15 97

U.S. Department of Transportation
Research and Special Programs Administration

400 Seventh Street S.W.
Washington, D.C. 20590

DOT-E 11506
(SECOND REVISION)

EXPIRATION DATE: June 30, 1999

(FOR RENEWAL, SEE 49 CFR SECTION 107.109.)

1. GRANTEE: OEA Automotive Safety Products, Inc. Denver, Colorado.

2. a.. PURPOSE AND LIMITATION: This exemption authorizes the manufacture, mark and sale of non-DOT specification cylinders (pressure vessels) for use as components of automobile vehicle safety systems. These pressure vessels may be charged with non-toxic, non-liquefied gases, or mixtures thereof and are authorized for transportation in commerce subject to requirements and limitations specified herein. This exemption provides no relief from any regulations other than as specifically stated.

b. F I V E Y E A R : This exemption authorizes transportation of the pressure vessels identified herein for up to five years from the date of manufacture. This exemption provides no certification of safety for end use environments and life cycles.

c. EXEMPTION SCOPE LIMITATIONS: This exemption only applies to a package when it is an article of commerce in transportation. The safety analyses performed in development of this exemption only considered the hazards and risks associated with transportation in commerce. The safety analyses did not consider the hazards and risks associated with consumer use, incorporation as a component of a vehicle or other device, or other uses not associated with transportation in commerce.,

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR 173.301(h), and 173.302 and 173.306(d)(3) insofar as non-DOT specification cylinders are not authorized.

5. BASIS. This exemption is based on OEA. Inc.'s application

dated June 2, 1997 in accordance with § 107.109.

HAZARDOUS MATERIALS (49 CFR 172.101):

Hazardous materials description/proper shipping name	Hazard Class/Division	Identification number	Packing Group
Non-toxic, non-liquefied gases and mixtures thereof/ Proper shipping name as specified in 49 CFR 172.101.	2.1, or 2.2 as appropriate.	As appropriate	N/A

A vehicle safety system or component which contains a quantity of pyrotechnic materials must be classed and approved as provided for in Section 173.56 of the Hazardous Materials Regulations (HMR). If the pyrotechnic material augments the volume of the gas in the pressure vessel, or in any way enhances the performance of the compressed gas, the device must be tested in the same configuration as when shipped.

7. PACKAGING(S) and SAFETY CONTROL MEASURES Packaging prescribed is a non-DOT specification prdssure vessel meeting the following requirements:

a. PACKAGING:

(1) The maximum service pressure at 70°F may not exceed 4500 PSIG. The minimum test pressure is the pressure of the contents at 200°F. The rated service pressure may not exceed 80 percent of the test pressure and the water volume of each pressure vessel may not exceed one liter.

(2) Material of construction must conform to all requirements of §178.65(b), except that aluminum is limited to 6061 alloy of T6 temper.

(3) Manufacturing requirements must conform to all requirements of §178.65(c).

(4) The minimum wall thickness must be such that the wall stress meets the requirements of §178.65(d).

(5) Openings and attachments must conform to all requirements of §178.65(e) except that a fill port hole of up to 0.130 inch in diameter may be located in an imaginary circle, concentric to the axis of the

cylinder, not exceeding 90 percent of the outside diameter of the cylinder. Drawings showing the location of the fill port hole must be on file with the Office of Hazardous Materials Exemtions and Approvals.

(6) Each pressure vessel must be equipped with a pressure relief device designed to meet all the requirements for a rupture disk prescribed in the Compressed Gas Association (CGA) Pamphlet s-1.1. The pressure relief device shall be capable of preventing rupture of the pressure vessel when subjected to' fire test conducted in accordance with CGA Pamphlet c-14.

(7) Pressure vessels, components, and vehicle safety systems must be transported in strong. outside packaging in accordance with 49, CFR 173.301(k).

b. TESTING:

(1) Each pressure vessel must 'be tested as required in §178.65(f) except that the hold time at test pressure specified in §178.65(f) may be limited to that which is adequate to insure compliance with the requirements contained in §178.65(f) subparagraphs (i) and (ii) .

(2) A representative vehicle safety system, packaged as it would be for shipment, must be activated and'no materials other than non-toxic, non-flammable vapors or gases may be expelled from the package.

c. MARKING:

Each pressure vessel must be durably marked as follows:

DOT E-11506/4500'
lot No. xxxxx[2]
Manufacturer's Name
This Pressure Vessel May Not Be Refilled

[1] Where 4500 represents the design service pressure.
[2] Where xxxxx is the lot number as appropriate.

Note: Each line of these markings may be placed without regard to location or order on the pressure vessel.

8. SPECIAL PROVISIONS.

a. This exemption is limited to pressure vessels used as components of a vehicle safety system. The pressure vessels are excepted from the requirements of the HMR, Part 178 when the design has been certified by an Independent Inspection Agency, approved under §173.300a as having met all the requirements of this exemption.

b. The Independent Inspection Agency's design

certification must include test results and documents related to explosive classification and approval. A copy of the certification must be maintained at each facility where the vehicle safety system is manufactured and by the Independent Inspection Agency for a period of 15 years from the date of completion of the design certification.

c. Persons who receive the packages covered by this exemption may reoffer them for transportation provided no modification or changes are made to the packages, all terms of this exemption are complied with and a current copy of this exemption is maintained at each facility from which such reoffering occurs.

'h. OEA, Inc. must comply with all' provisions of this exemption, and all other applicable requirements contained in the HMR, Parts 171-177. No modifications may be made to the pressure vessel, pyrotechnic components or production vehicle safety system which would affect the performance of the vehicle safety system or its compliance with the requirements of this exemption until such modifications have been reviewed, tested and certified by an Independent Inspector as meeting the requirements of this exemption.

e. Except when transported on passenger carrying aircraft, devices utilizing the non-DOT specification pressure vessel authorized herein are exempt from the requirements of 49 CFR Parts 100-199 when installed in a motor vehicle or in completed vehicle components such as steering columns or door panels.

9. MODES OF TRANSPORTATION A[redacted] Motor vehicle, rail freight, cargo vessel, cargo aircraft only.

This exemption is to serve as an authorization of The Competent Authority for the United States (CA-9510011) in accordance with the General Packing Instructions Part 3, Chapter 2 Paragraph 2.5 of the International Civil Aviation Organization Technical Instructions (ICAO TI) and additionally meets the requirements of State Variation US 6. Pressure vessels or vehicle safety systems complying with this exemption are authorized to be shipped pursuant to Packaging Instruction 200 of ICAO TI.

0. MODAL REQUIREMENTS: A copy of this exemption must be carried aboard each cargo vessel and aircraft used to transport the packages covered by this exemption. The shipper shall furnish a copy of this exemption to the air carrier before or at the time the shipment is tendered.

1. COMPLIANCE. Failure by a person to comply with any of the following may result in suspension or revocation of this

exemption and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. Section 5101 et seq;

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, Parts 171-180.
- Registration required by 49 CFR 107.601 et seq., when applicable.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. REPORTING REQU[redacted] The carrier is required to report any incident involving loss of packaging contents or packaging failure to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (49 CFR 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder of this exemption must inform the AAHMS, in writing, of any incidents involving the package and shipments made under the terms of this exemption.

Issued at Washington, D.C.:

JUL 15 1997

Alan I. Roberts (DATE)
Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: DHM-31.

The original of this exemption is on file at the above office. Photo reproductions and legible reductions of this exemption are permitted. Any alteration of this exemption is prohibited.

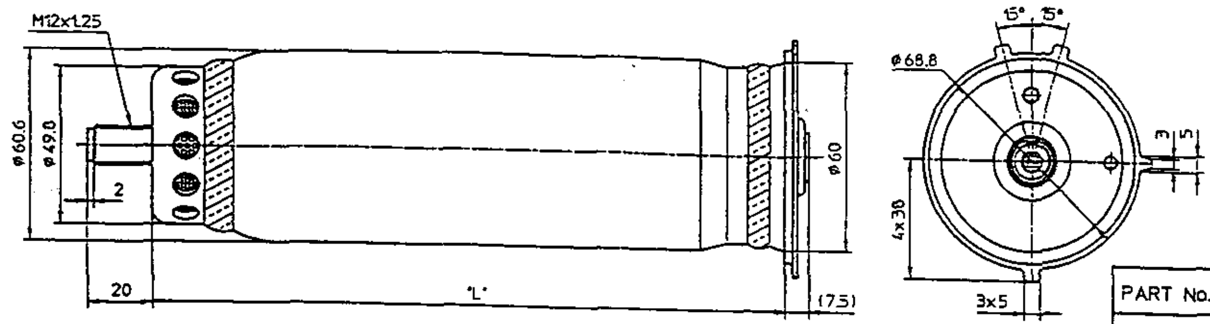
Dist: FRA, USCG, and FAA

Drawing of DHD 5000 and Parts, The Inflator Explosive & Compressed Gas Components, Parts Manufacturer List, Inspection Certificate, Calculation of Cylinder Wall Stress and Thickness, Manufacturing and Testing Equipment,- Process Flow. and Machine Lavout

Contents

Redacted Copies of Attachments for
The Application of Airbag Inflator Model/No. DHD 5000
for DOT Exemption Approval for Daicel Safety Systems, Inc.

Redacted Version



PART No.	PROPELLANT WEIGHT	OUTER DIAMETER	LENGTH "L"	GAS WEIGHT
DHD5000-1	5~ 8g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g
DHD5000-2	8.1~10g	ø60.6mm	196.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g
DHD5000-3	10.1~12g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g

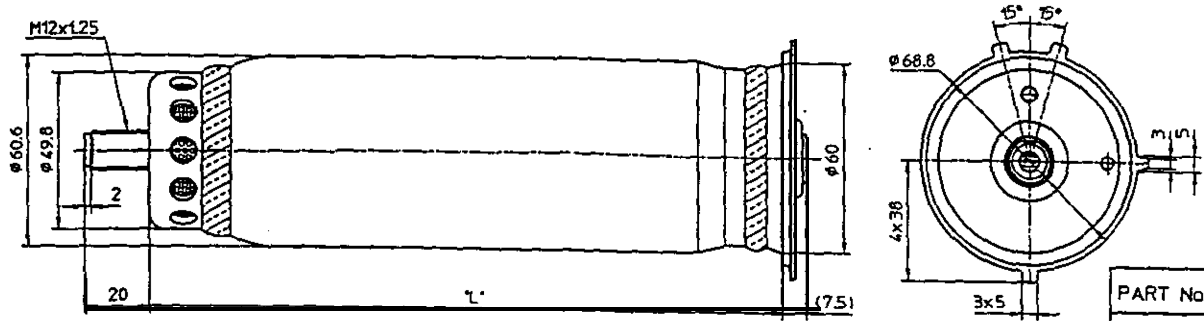
No.	PART No.	PART NAME	QTY	MATERIAL	NOTE
⑯	DHD7000200	RUST INHIBITOR	–	———	
⑮	DHD7010000	O-RING	1	RUBBER	
⑭	DHD6160000	INITIATOR ASSY	1	ZPP	
⑬	DHD7020101	SEAL PIN	1	SWCH10K PER JIS	(ASTM A555 equiv)
⑫	DHD7020000	GAS	–	Ar/O2/He	
⑪	DHD6140000	DIFFUSER ASSY	(1)	———	
⑩	DHD6130000	CHECK VALVE SUBASSY	(1)	———	
⑨	DHD7110000	ORIFICE SLEEVE	1	S15C PER JIS	(ASTM A108 equiv)
⑧	DHD6120000	OUTLET CLOSURE SUBASSY	(1)	———	
⑦	DHD7040200	RETAINER	1	S70C CSP PER JIS	(ASTM A684 equiv)
⑥	DHD7040100	PROPELLANT	–	RDX/CAB/AR	
⑤	DHD7040000	BOTTLE	1	STKM18C PER JIS	(ASTM A519 equiv)
④	DHD6090000	COMBUSTION CHAMBER SUBASSY	(1)	———	
③	DHD7060000	TRANSFER TUBE	1	SPCE PER JIS	(ASTM A620 equiv)
②	DHD6080000	BOOSTER ASSY	(1)	———	
①	DHD6070000	INLET CLOSURE SUBASSY	(1)	———	

REV.	CHANGE No.	DESIGN	REVISION RECORD	CHECKED	APPROVED
3			③ TABLE OF PROPELLANT WEIGHT & LENGTH ADDED		
2			② PART NUMBER REVISED		
1		K.Yabuta	① (BAR CODE LABEL HARNESS ASSY) DELETE	Y.Gotoh	Y.Iwai

MATERIAL —	APPROVED Y.Iwai Dec/4/97	SCALE /	CUSTOMER
SHARP EDGES —	CHECKED Y.Gotoh Dec/4/97		NAME HYBRID INFLATOR
SURFACE ROUGHNESS —	DESIGN K.Tokuda Dec/4/97		DRAWING No. DHD5000 — REV. 3
SURFACE TREATMENT —	H.Yabuta Dec/4/97		DAICEL SAFETY SYSTEMS, INC. — SHT —
HEAT TREATMENT —	WEIGHT		

Attachment 5-1

Redacted Version



PART No.	PROPELLANT WEIGHT	OUTER DIAMETER	LENGTH "L"	GAS WEIGHT
DHD5000-1	5~ 8g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g
DHD5000-2	8.1~10g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g
DHD5000-3	10.1~12g	ø60.6mm	198.7 mm	147 g
			181.0 mm	128 g
			150.0 mm	95 g

No.	PART No.	PART NAME	Q'TY	MATERIAL	NOTE
16	DHD7000200	RUST INHIBITOR	–	——	
15	DHD7010000	O-RING	1	RUBBER	
14	DHD6160000	INITIATOR ASSY	1	ZPP	
13	DHD7020101	SEAL PIN	1	SWCH10K PER JIS	(ASTM A555 equiv.)
12	DHD7020000	GAS	–	Ar/O2/He	
11	DHD6140000	DIFFUSER ASSY	(1)	——	
10	DHD6130000	CHECK VALVE SUBASSY	(1)	——	
9	DHD7110000	ORIFICE SLEEVE	1	S15C PER JIS	(ASTM A108 equiv.)
8	DHD6120000	OUTLET CLOSURE SUBASSY	(1)	——	
7	DHD7040200	RETAINER	1	S70C-CSP PER JIS	(ASTM A684 equiv.)
6	DHD7040100	PROPELLANT	–	RDX/CAB/AR	
5	DHD7040000	BOTTLE	1	STKM18C PER JIS	(ASTM A519 equiv.)
4	DHD6090000	COMBUSTION CHAMBER SUBASSY	(1)	——	
3	DHD7060000	TRANSFER TUBE	1	SPCE PER JIS	(ASTM A620 equiv.)
2	DHD6080000	BOOSTER ASSY	(1)	——	
1	DHD6070000	INLET CLOSURE SUBASSY	(1)	——	

REV.			REVISION RECORD	CHECKED	APPROVED
1			(1) TABLE OF PROPELLANT WEIGHT & LENGTH ADDED.		
2		H.Yabuta / H.Tokuda	(2) PART NUMBER REVISED.	Y.Gotoh	Y.Iwai
3		H.Yabuta / H.Tokuda	(3) (BAR CODE LABEL, HARNESS ASSY) DELETE.	Y.Gotoh	Y.Iwai

MATERIAL	—
SHARP EDGES	—
SURFACE ROUGHNESS	—
SURFACE TREATMENT	—
HEAT TREATMENT	—
APPROVED	Y.Iwai Dec/4/97
CHECKED	Y.Gotoh Dec/4/97
DESIGN	H.Tokuda Dec/4/97
	H.Yabuta Dec/4/97
SCALE	/
SIZE	A3
CUSTOMER	
NAME	HYBRID INFLATOR
DRAWING No.	DHD5000
REV.	3

DAICEL SAFETY SYSTEMS, INC

THE INFLATOR EXPLOSIVE & COMPRESSED GAS COMPONENTS

Components	Weight	mol %	Use
			Propellant(*1)
			Booster(*1)
Zr/KCLO4			Initiator Load(*1)
Ar			Gas (*2)
O2			Gas (*2)
He			Gas (*2)

*1 : Chemical Composition

Name	Weight	Composition	Percentage
Propellant			
Booster			
Initiator Load	10 ~280 mg	Zr/KCLO4	98.0%
		Viton	2.0%

*2 : Maximum Gas Pressure is 4600 psi.

PARTS MANUFACTURER LIST

PAR' NAME	MANUFACTURE		NE	MATERIAL SUP

Calculations of Cylinder Wall Stress and Thickness

1. Wall Thickness and OD of Bottle

2. Caluculation Result

Module No.	Module Name	Process No.	Process Name	No. o Description of Equipment units

Module NO.	Module Name	Process No.	Process Name	No. o Description of Equipment units

Module No.	Module Name	Process No.	Process Name	No. o Description of Equipment units

Module No.	Module Name	Process No.	Process Name	No. o Description of Equipment units

Module No.	Module Name	Process No.	Process Name	No. o Description of Equipment units

Module No.	Module Name	Process No.	Process Name	No. o Description of Equipment units

Module No.	Module Name	Process No.	Process Name	No. o Description of Equipment units

Attachment 5-31
Redacted Version

Attachment 5-32
Redacted Version